

Report of Director of City Development and Director of Resources and Housing

Report to Executive Board

Date: 13 February 2019

Subject: Full Fibre Network Programme for Leeds

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| Are specific electoral wards affected? If yes, name(s) of ward(s): | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Are there implications for equality and diversity and cohesion and integration? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Is the decision eligible for call-in? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Does the report contain confidential or exempt information? If relevant, access to information procedure rule number: 10.4(3) Appendix number: A Cover slide finance summary sheet B Detailed supplier costs | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

Summary of main issues

1. To seek approval to go to procurement for a partner to build and deliver a full fibre gigabit capable network to Leeds City Council and partner buildings across the district within a financial envelope. Using these public sector owned sites as anchors the Council will seek to accelerate the wider roll out of fibre to the premise (FTTP) to residential and commercial premises adjacent to LCC buildings and routes. If successful the Council would hope to make the Leeds metropolitan district the largest gigabit and 5G capable city outside of London, attracting increased inward investment, increasing the competitiveness of existing businesses and help close the digital/social divide in some of the City's poorest areas.

2. The Leeds Inclusive Growth Strategy articulates an ambition to improve the digital connectivity position of the city. To achieve its vision of 'A compassionate city with a strong economy', Leeds City Council is committed to tackling poverty and reducing inequalities. Connectivity is recognised as a foundation layer which underpins the Council's wider digital inclusion objectives and is referenced in the Best Council Plan 2018 to 2021, Leeds Inclusive Growth Strategy and Smart Leeds. Improving access to and take up of good quality connectivity options by residents will allow the Council and its partners to explore more widespread digital and telehealth solutions, initiatives to reduce social isolation, and enhanced use of sensors to support independent living. Widespread

proliferation of full fibre networks can allow for greater use of environmental sensors to support work around traffic management and reducing pollution.

3. As a large organisation with significant connectivity requirements and a large asset base, the Council could significantly influence the infrastructure position of the city. The amount of telecommunications network design, build and deployment work required to achieve a successful implementation of a gigabit fibre optic network would provide an enabling backbone of fibre-optic broadband connectivity to parts of the district which have not previously benefitted from commercial investment programmes by incumbent operators.

4. It is anticipated that the creation of a full fibre digital infrastructure will be an attractive commercial investment opportunity for telecommunications network wholesalers and operators, who will want to 'build on' to this new provision in order to deliver broadband and possibly 5G services to residents and businesses. This aligns with the Council's inclusive growth ambitions to bring a choice of connectivity types and providers to residents and businesses in Leeds.

Recommendations

The Executive Board is requested to:

- (i) Authorise a decision to go through a new procurement process for a partner to build and deliver full fibre connectivity to ensure the provision of the greatest amount of coverage, coupled with the opportunity to extend connectivity further with commercial investment within LCC's financial envelope.
- (ii) Agree that all budgets where there is a connectivity requirement be incorporated within the 'Full Fibre Programme' in order to achieve a greater coverage, cost saving and benefits realisation.
- (iii) Note that the Chief Digital and Information Officer will be responsible for overseeing the Full Fibre Implementation. The Chief Economic Development Officer will take responsibility for supporting the commercial investment opportunities that this build may generate for the city.

1. Purpose of this report

- 1.1 The report contains a key decision around deployment and implementation of a full fibre gigabit capable network to all buildings in scope. The decision is significant, as the ambition of this build process is to provide future-proof full fibre, gigabit capable connectivity wherever it is feasible to do so. The proposed deployment will include public buildings such as GP surgeries, schools, libraries and Council-owned premises.
- 1.2 Development of a gigabit capable, full fibre network provides the Council with an opportunity to influence the digital infrastructure position of the city which will have positive effects for businesses and residents across the district.

2. Background information

- 2.1 The Council has articulated an ambition to deliver wider connectivity benefits for the city as a whole. Secondly commercial investment programmes are targeting Leeds as a location for full fibre network build.
- 2.2 Developing more extensive full fibre networks has been prioritised by Government which recognises that the low penetration rate of full fibre connections is a barrier to growth in the UK economy. Currently c.5% of UK premises are enabled with Fibre to the premises – FTTP connectivity, which compares poorly with counterparts in Europe such as Spain and Portugal (71% and 89% of premises respectively) and the far east e.g. Japan and South Korea where in excess of 95% of premises have FTTP connections.
- 2.3 Using the Council's buying power to achieve full fibre connectivity to an 'anchor' group of sites within the public sector estate could enable Leeds to be an early mover in establishing extensive FTTP capability on a city-wide scale.
- 2.4 Whilst there is a clear relationship between broadband investment (and penetration) and economic growth¹, research into the total impact of full fibre networks themselves is not well advanced. A Regeneris report of 2018 identified 11 principle impacts of investment in full fibre networks (split into core and wider impacts) and a further 4 likely social and economic effects of such investment programmes. These impacts have been mapped below against relevant 'big idea' areas in the Leeds Inclusive Growth Strategy.

¹ Dr Pantelis Koutroumpis 'The economic impact of broadband – evidence from OECD countries', <https://www.ofcom.org.uk/research-and-data/telecoms-research/broadband-research/economic-impact-broadband>

| Impact of investment in full fibre ² | LIGS 'big idea' areas |
|--|---|
| <p>Core impacts: economic and employment impacts associated with the network build</p> <p>existing businesses exploiting full fibre applications to generate productivity improvements</p> <p>existing businesses exploiting full fibre applications to innovate and open new markets</p> <p>new business start-ups capitalising on gigabit broadband to operate new digitally dependent business models at lower cost and more flexibly than established businesses</p> <p>flexible working practices, enabled through gigabit cloud, file transfer and communications/conferencing applications and delivering additional productivity benefits</p> <p>private households benefits via increases in house price and housing wealth.</p> | <p>Working together to create better jobs, tackle low pay and boost productivity</p> <p>Leeds as a Digital City</p> <p>21st century infrastructure</p> <p>Supporting places and communities to respond to economic change</p> <p>Backing innovators and entrepreneurs</p> |
| <p>Wider impacts: the impact of 5G mobile networks, which will require full fibre backhaul</p> <p>smart cities infrastructure such as reductions in energy use, congestion and fuel costs stemming from smart energy and traffic systems</p> <p>increased manufacturing productivity secured from the emerging digital revolution in manufacturing (Industry 4.0) and connected Internet of Things (IoT) devices</p> <p>healthcare benefits through advances in connected health technologies</p> <p>environmental impacts through carbon reduction</p> | <p>Leeds as a Digital City</p> <p>Best City for Health and Wellbeing</p> <p>Working together to create better jobs, tackle low pay and boost productivity</p> <p>21st century infrastructure</p> |
| <p>Additional social and economic benefits: Growth in the tech sector: the continued rise of the fintech and healthtech industries will be powered by full fibre and make a significant contribution to growth in our future economy.</p> <p>Public service delivery: full fibre will allow residents and businesses to interact with local government and public services in a more seamless way as full fibre opens additional means of delivering public services. In 2015/16 alone, the government made £339 million of operational savings through digital transformation.</p> <p>Digital and social inclusion: reducing the digital divide between locations and people to ensure no one is left too far behind.</p> <p>Access to education: the education sector is already being transformed through digital technology. Full fibre will accelerate new more flexible ways for students to learn remotely and to use interactive e-learning tools</p> | <p>Working together to create better jobs, tackle low pay and boost productivity</p> <p>Leeds as a Digital City</p> <p>Supporting places and communities to respond to economic change</p> <p>Putting children at the heart of the Growth Strategy</p> <p>Employers and people at the centre of the education and skills system</p> |

² Regeneris (2018), 'The Economic Impact of Full Fibre Infrastructure in 100 UK Towns and Cities' <https://cityfibre-electricstudiolt.netdna-ssl.com/wp-content/uploads/2018/03/The-Economic-Impact-of-Full-Fibre-Infrastructure-in-100-UK-Towns-and-Cities-12.03.18.pdf>

- 2.5 Improving the digital infrastructure position of the city is an important area of work for the Council. Aligning with Inclusive Growth Strategy, LCC has set out an ambition to have the best connectivity in the UK and for all premises across the district both residential and commercial, to be able to access gigabit capable services. Outside of London, this will, if approved, be the largest scale full fibre gigabit network in the UK and will give Leeds a significant competitive advantage in attracting new business to the area, increasing regional GDP, reducing the City's carbon footprint and helping to address issues of digital and social exclusion.
- 2.6 The strategic context for this ambition is that encouraging the widespread deployment of full fibre networks has the potential to, not exclusively:
- 2.6.1 Improve social inclusion and widen digital participation – Child Friendly Leeds puts children and young people at the heart of what the Council does. The Council wants to ensure that pupils and staff can access the best quality connectivity to diversify and improve learning methods within schools and at home, and teach children and young people the digital skills they will need to succeed in later life. Supporting connectivity to the LCC social housing portfolio provides a basis for engagement of this important cohort of residents in wider digital inclusion initiatives.
- 2.6.2 Improve health outcomes – greater roll out and access to high quality digital infrastructure will help maximise the benefit of digital/tele-health initiatives including better self-care and management of long-term conditions, allowing people to live at home longer, and improved communication between primary and secondary healthcare providers and social care providers.
- 2.6.3 Improve operating conditions for businesses – supporting both the Inclusive Growth Strategy and the city region Strategic Economic Plan and emerging Digital Framework to encourage the development of the existing digital and tech sector and all business, irrespective of their activity, to invest in and utilise digital technologies to improve productivity.
- 2.6.4 Encourage business start-up – more widespread access to high quality connectivity and digital training can significantly reduce the costs associated with business start-up and operation. Digital tools can increase access to wider markets through more seamless collaboration with partners, promotion and selling online. The increased use of cloud storage solutions and subscription based services allows business owners, including new start businesses, more flexibility in terms of their operating costs and reduces the need for upfront investment in capital items.
- 2.6.5 Serve as a differentiator for Leeds to boost the region's attractiveness as a business location. Building on recent investment decisions by significant national organisations such as Channel 4 and Government Digital Service, encouraging extensive FTTP networks at scale across the city before other UK cities would raise Leeds' profile as an inward investment location.
- 2.6.6 Reduce the number of car journeys and improve air quality – making it easier for businesses to explore greater use of remote and home working.
- 2.6.7 Futureproof city infrastructure - Government's Future Telecoms Infrastructure Review anticipates that the switchover from copper based technology to fibre will be underway in the majority of the country by 2030. Investing in full fibre networks now positions the city advantageously in relation to this future change.

3. Main issues

- 3.1 The Council's ambition is that all premises across the city should be able to access gigabit capable connectivity regardless of the use of the building. This ambition gives the backdrop to the Full Fibre Programme. It is recognised that as the owner of significant land and property assets, a sizable consumer of connectivity and digital services as well as its various statutory roles in respect of the entire development process, Leeds City Council has the opportunity to significantly influence the infrastructure position of the city.
- 3.2 The aims of the Full Fibre Programme in its entirety are to;
- Develop a full fibre network to serve every school within the Leeds MD (297 schools) allowing schools across the district to access the best possible connectivity
 - Provide connectivity to 293 Council Buildings and 156 NHS buildings
 - Provide connectivity to residents within the LCC social housing portfolio (first phase 116 tower blocks, c.9,500 residents)
 - Provide connectivity to the LCC CCTV network to support Safer Leeds initiatives
 - Explore how to use other assets within the Council's ownership to facilitate the extension of full fibre networks and gigabit connectivity
 - Support and encourage commercial investment in full fibre infrastructure across Leeds and the city region
- 3.3 Commercial investment in full fibre networks is taking place in Leeds. Openreach are delivering their Fibre First rollout across 5 exchange areas within the Leeds MD. This investment programme seeks to provide a full fibre connection to every premise associated with those exchanges. CityFibre has recently announced a c. £120M investment in Leeds to deliver FTTH connections to c.225k homes. Virgin Media are extending their commercial networks in Leeds with a mixture of full fibre connections and their hybrid product Hybrid Fibre Coaxial (HFC).
- 3.4 Work to date indicates a full fibre (FTTP) gigabit capable network of approximately 1300 sites (including all LCC sites, Clinical Commissioning Group and GP sites, all schools, CCTV and shared Leeds Community Health sites) can be delivered. Providers have indicated that they would make use of this new network to accelerate and expand their roll out of full fibre connectivity to adjacent premises. Due to State Aid rules a procurement cannot specify for this type of activity (known as additionality). Weightings can be used within the scoring criteria to assess procurement responses in order to highlight proposals which contain a degree of additionality.
- 3.5 Following a Soft Market Test, the output indicates that suppliers can be encouraged to include the following elements of additionality in their proposals;
- Accelerated 5G Deployment
 - Potential future income to LCC based on utilisation of LCC assets (rooftops, CCTV poles etc.)
 - The bringing forward of additional capital investment from operators and a value associated with that (e.g. investment in wider networks serving homes and businesses)

- 3.6 As a result of the Soft Market Test it is believed that a full fibre programme is affordable and the Council will be able to obtain a supplier which can deliver against the requirements and within the cost envelope based on the following:
- Time to deliver
 - Cost of build
 - Cost of CPE (Customer Premises Equipment ((routers))
 - Network Management Costs
 - Value Ad for Leeds
- 3.7 The costs of this are split in the following way:
- The costs of laying the fibre, clearing existing ducts and associated digs.
 - The annual maintenance and support of ducts and physical fibre.
 - The cost of the Customer Premises Equipment (CPE) that which is the fibre connects to and transmits the data.
 - The maintenance and support of the CPE and network overall.
- 3.8 The Council currently spends around £1.2M per annum on Wide Area Network (WAN) connectivity under the current PSN contract with Virgin Media Business. This budget is managed by DIS for connectivity of 293 sites and is based on sub gigabit speed links. In addition to the £1.2M core spend, there are other services across the council which are procuring connectivity solutions in isolation. The Council will seek to centralise budgets for any project which has connectivity requirements. An audit is currently underway to determine the extent of this additional expenditure.
- 3.9 CCG and GP sites will contribute revenue towards the build and ongoing costs. As detailed in section 3.11 it is the aim of the Council to combine these budgets (CCTV / NHS partners / ICT4Leeds Schools) in order to contribute revenue to the network build and ongoing maintenance costs.
- 3.10 Using £750k of this budget per year would enable the Council to borrow £13M at 3% over a 25 year term. This would leave £450k per year for any annual service charge. Additionally, £3.6M capital has previously been allocated in the Capital Programme, to support full fibre roll out. Therefore, the initial affordability envelope is £16.6M capital to deliver a full fibre build leaving £450k revenue to support a managed service annually.
- 3.11 The proposal is to connect approximately 1300 end points/sites. The soft market test has returned total programme costs ranging from £32M to £58M which includes capital and revenue spend and is considered very close to the current financial envelope for 293 Council sites.
- 3.12 There are parts of other revenue budgets available in other services that are used to connect CCTV and other services. These funds are often combined with that for the end devices e.g. cameras. An audit is currently being undertaken to identify these so that the costs can be centrally managed and used to underpin this network and the financial envelope.

3.13 Furthermore the soft market test has indicated that suppliers would look to encourage additionality that would include income from third parties for use of the network. E.g. the mobile network providers are reliant on fibre backhaul to connect their mobile masts. This is particularly the case for the future provision of 5G. In this scenario the 5G providers would pay to use the network and money would come back the Council that could fund any gap or perhaps exceed it.

4. Corporate considerations

4.1 Consultation and engagement

4.1.1 The Inclusive Growth Strategy sets an ambition for Leeds to develop 21st century infrastructure. It is recognised that in order to deliver this infrastructure there may be some short term disruption. The Council has established a Connectivity Board chaired by Martin Farrington, Director of City Development and comprised of senior Highways and Planning Officers. The successful operator would engage with and report into this Board. The successful delivery partner will agree the network design in conjunction with the Connectivity Board to ensure that the required approvals, including Planning consent where required, are in place at an appropriate point in the delivery process.

4.1.2 Given that the programme of works is technical in nature and unlikely to impact outside of the organisations named within this report, DIS has led on this work. However, due to the City Digital Partnerships programme in place across the Council and local health partners, various partners within the city have been consulted about the plans as part of the planning and design phases of this network. This included the Leeds CCG, which is supportive of the plans and has pledged at least 40% of its sites to be included within the initial core network implementation, with a view to providing enhanced connectivity to their remaining estate of sites when better solutions (e.g. full fibre broadband) is made available.

4.1.3 The governance around this programme has been provided by the Leeds Connectivity Board, which is chaired by the Director of City Development and attended by the Service Heads and senior officers of DIS, Economic Development, Highways, Planning and Housing amongst other service areas.

4.1.4 Elected Members have been briefed and consulted as part of this work including the Deputy Leader and Executive Member for Resources and Sustainability, the Chair of Scrutiny Board, Infrastructure, Investment and Inclusive Growth, the Leader of the Liberal Democrat Group and the Leader of the Conservative Group.

4.1.5 The Chief Executive has been kept apprised of developments around this programme.

4.1.6 Legal and Procurement Teams have been engaged to identify the best procurement route.

4.2 Equality and diversity / cohesion and integration

4.2.1 As the team have not yet had access to detailed design proposals, it has not been possible to undertake comprehensive equality screening at the current time. An initial 'Phase 1' screening assessment has been undertaken and is appended at appendix D.

- 4.2.2 No individuals or groups will be discriminated against as part of the public services network proposal which essentially has a remit to provide improved and upgraded connectivity between public sector buildings and assets.
- 4.2.3 Instances may arise where particular areas (yet to be determined) receive a degree of access to enhanced broadband connectivity and commercial broadband services as part of the ongoing rollout, once work commences on the network build. Although the Council and health partners cannot specify or lead a commercially-driven roll out or necessarily influence the areas where private, commercial investors wish to offer services, it is envisaged that a by-product of this programme would be to assist in the availability of better connectivity to some of the most deprived areas of Leeds.

4.3 Council policies and best council plan

- 4.3.1 The Inclusive Growth Strategy sets an ambition for Leeds to develop 21st century infrastructure and develop Leeds as a digital city. As part of the 100% Connectivity Programme the Council has established a programme board chaired by Martin Farrington, Director of Development and comprised of senior Highways and Planning Officers. This board will remain well sighted on the progress of the procurement associated with the Full Fibre programme.
- 4.3.2 Any commercial rollout following the initial network deployment would have a potential alignment with the City Priorities, particularly creating more jobs for the city as the broadband speeds will contribute to competitiveness. The Full Fibre programme ultimately fits with the Council's Best Council objective to promote sustainable and inclusive economic growth to improve the economic wellbeing of both local people and local businesses.
- 4.3.3 Connectivity is a foundation layer within LCC's Smart Cities approach to enable realisation of a wider set of benefits associated with the 100% Digital ambition.

4.4 Resources and value for money

- 4.4.1 The Council currently spends around £1.2M per annum on Wide Area Network (WAN) connectivity under the current PSN contract with Virgin Media Business. Approximately £250K is recouped from schools customers as part of a managed WAN service offered by DIS.
- 4.4.2 The programme would be funded by borrowing against this forecasted spend over a period of 20 to 25 years in order to provide the funding to undertake the bulk of the necessary investment.
- 4.4.3 Additionally, £3.6M capital has previously been allocated for full fibre. It is recommended as part of this proposal that this capital sum is apportioned towards this.
- 4.4.4 The precise procurement approach is yet to be finalised, but it is likely that the principle will be based on seeking a mandatory bid that fits within the affordability envelope. In addition there would an option for suppliers to submit a variant proposal that provides a more comprehensive solution for the Council and partners to consider.

4.5 Legal implications, access to information, and call-in

- 4.5.1 The Council is using in-house legal resource to advise on the programme process and arrangements.
- 4.5.2 This report contains confidential information in the form of commercial pricing from those suppliers involved in the Soft Market Test. In order to obtain the most competitive prices possible in response to a future procurement exercise the Council do not wish to put pricing information received to date into the public domain. It is felt that disclosure of this information would be prejudicial to the Council and the suppliers involved. As such this information is deemed exempt from publication under Access to Information Procedure rule 10.4(3) due to its commercially sensitive nature and may have a detrimental impact on the outcome of any future procurement. With this in mind, it is felt that maintaining such information as exempt from publication outweighs the public interest in disclosing it at this time.
- 4.5.3 This report is subject to call-in.
- 4.5.4 The delivery of the core infrastructure is for Corporate connectivity and to provide core services to the Council and its Partners which mitigates any state aid challenge. The Council is not procuring any additionality as part of this work. It is recognised that additionality will potentially be an output. As referenced in Section 3.4, due to State Aid rules a procurement cannot specify for this type of activity (known as additionality). Weightings can be used within the scoring criteria to assess procurement responses in order to highlight proposals which contain a degree of additionality.

4.6 Risk management

- 4.6.1 There is a risk that the additionality will not be delivered. Additionality is not a guarantee and the market may not respond in the way that is anticipated. All of the providers included in the soft market test process have indicated that it would be commercially advantageous to them to roll out fibre quicker using this network as an anchor. This model is a model that is recommended by the Department for Digital Culture, Media and Sport who are accountable for accelerating the roll out of full fibre connectivity across the UK.
- 4.6.2 The programme will be delivered using the Council's agreed project management methodology and a programme risk log will be maintained and risks managed, monitored and escalated through the governance process as necessary.

5. Conclusions

- 5.1 There is an opportunity to use the Council's current WAN (Wide Area Network) spend to enhance existing commercial investment by taking fibre networks more extensively across the district. This has benefits to the Council in terms of how business is transacted and services are delivered as well as improving the overall whole city infrastructure position.
- 5.2 The delivery of this programme will both provide the futureproofing Leeds needs to maintain its competitive advantage and also enable the significant delivery of the latest digital technologies on a city-wide scale. This will lead to greater success in the following:

- provision gigabit capable networks to public sector sites.
- accelerating the roll out of full fibre to communities and businesses including to some of Leeds most deprived areas.
- accelerate the roll out of 5G.
- enable more Leeds businesses to become digitally enabled and compete on a more global stage.
- encouragement of more inward investment.

5.3 The programme will also offer a commercial investment opportunity to further build on the connectivity. Investment in fibre broadband technologies across the city will create a more competitive marketplace, greater consumer choice and will underpin the shared ambition of Leeds becoming a truly digital city.

6. Recommendations

6.1 The Executive Board is requested to:

- 6.1.1 Authorise a decision to go through a new procurement process for a partner to build and deliver full fibre connectivity to ensure the provision of the greatest amount of coverage, coupled with the opportunity to extend connectivity further with commercial investment within LCC's financial envelope.
- 6.1.2 To agree that all budgets where there is a connectivity requirement be incorporated within the 'Full Fibre Programme' in order to achieve a greater coverage, cost saving and benefits realisation
- 6.1.3 Note that the Chief Digital and Information Officer will be responsible for overseeing the Full Fibre Implementation. The Chief Economic Development Officer will take responsibility for supporting the commercial investment opportunities that this build may generate for the city.

7. Background documents³

7.1 None.

8. Appendices

- 8.1 Appendix A - Summary Sheet Costs (Exempt from publication under the provisions of Access to Information |Procedure Rule 10.4(3))
- 8.2 Appendix B - Supplier Costs Comparison (Exempt from publication under the provisions of Access to Information |Procedure Rule 10.4(3))
- 8.3 Appendix C – Full Fibre Coverage in the UK
- 8.4 Appendix D – Screening Assessment

³ The background documents listed in this section are available to download from the Council's website, unless they contain confidential or exempt information. The list of background documents does not include published works.

